More Prevalent Comorbidities, Healthcare Costs, and Service Utilization in Male Myotonic Dystrophy (DM) Patients and Female Patients

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Objective

- Describe the management of male and female patients with myotonic dystrophy (DM) compared with matched controls (MCs)

Background

- DM types 1 and 2 are rare, dominantly inherited, multisystem diseases that present as progressive muscle weakness and myotonia, along with variable cardiopulmonary, gastrointestinal, and neurological manifestations[1-3]
- Sex-specific data on patients with DM are limited
- There currently are no approved therapies for DM[3]

Design/Methods

- We used PharMetrics de-identified US claims (Jan 2010—Mar 2021) to retrospectively evaluate care for DM and MC cohorts (Figure 1)
  - The DM cohort is identified as having ≥2 DM claims ≥30 days apart. DM claims were identified by International Classification of Disease Ninth Revision (ICD-9) code 359.21 or Tenth Revision (ICD-10) code G71.11, which do not differentiate between DM subtypes

Figure 1: Cohort Identification

1 DM patient	RATIO	3 non-DM MCs
≥2 DM claims ≥30 days apart		No DM
First diagnosis date	INDEX DATE	Assigned by matching process

- Cohorts were matched on index month, baseline age, region, sex, plan, and payer types
- All subjects had 5 years of data following their index date
- Costs are the total of member paid plus plan paid. All cost data were adjusted to constant 2020 US dollars
- Comorbidities were classified by the Agency for Healthcare Research and Quality (AHRQ)-specific categories[4]
- Prescription products were classified by the Anatomical Therapeutic Chemical (ATC). The ATC3 classification data presented in this poster are based on chemical substances[5]
- Services represent the chargeable activities per visit
- Data reported are per-member-per-year for cost and number of services
- All reported findings are statistically significant ($p \leq 0.001$) unless noted
  - P values for prevalence and utilization comparisons are based on chi-square tests of the percent of the cohort
  - P values for cost and number of services are based on *t*-tests

Results

- We identified 892 individuals with DM (male=400, female=492) and 2676 MCs (male=1209, female=1467)
  - In both the male and female cohorts, DM vs MCs were $p<0.0001$ for both the Charlson Comorbidity Index (CCI) and percent with CCI >1 while the ages were similar (Table 1)

Table 1: Descriptive Characteristics

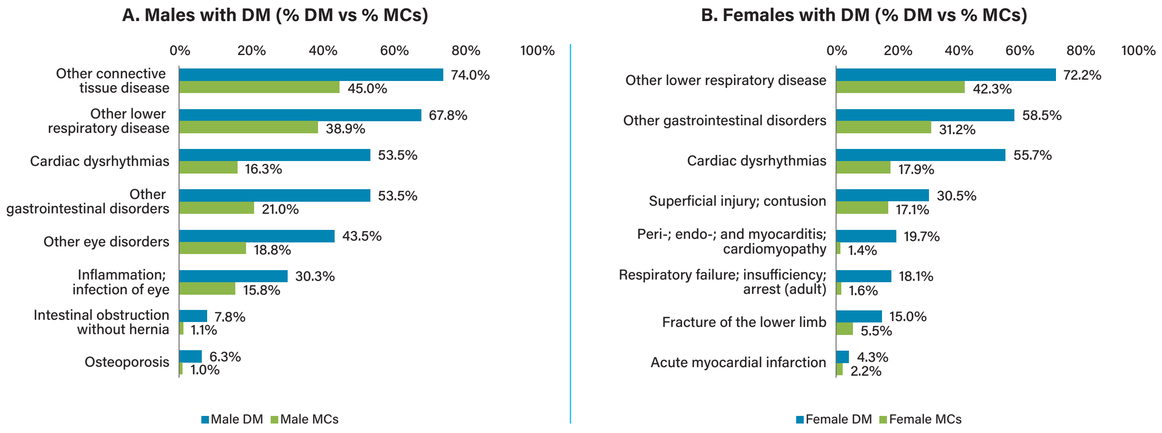
Descriptive Characteristic	Male DM (N=400)	Male MCs (N=1209)	Female DM (N=492)	Female MCs (N=1467)
Mean age (SD)*	39.0 (18.9)	39.2 (19.3)	42.0 (17.1)	41.8 (17.0)
CCI mean (SD)	1.90 (2.20)	0.93 (1.95)	1.77 (2.18)	0.92 (1.81)
Percent with CCI >1	42.0%	17.9%	42.3%	18.7%

*P>0.05.

Comorbidities

- There were more comorbid condition-specific categories in males than in females (100 vs 93) where prevalence was significantly greater in DM vs MCs (Figure 2)
  - Comorbidities that were significantly different (DM vs MCs) and more prevalent in male DM patients included "other lower respiratory disease", "cardiac dysrhythmias", and "osteoporosis"
  - Similarly, "fracture of lower limb," "acute myocardial infarction," and "superficial injury; contusion" were comorbidities that were only significantly more prevalent in female patients with DM

Figure 2: Select* Comorbidities by Absolute Prevalence per Cohort



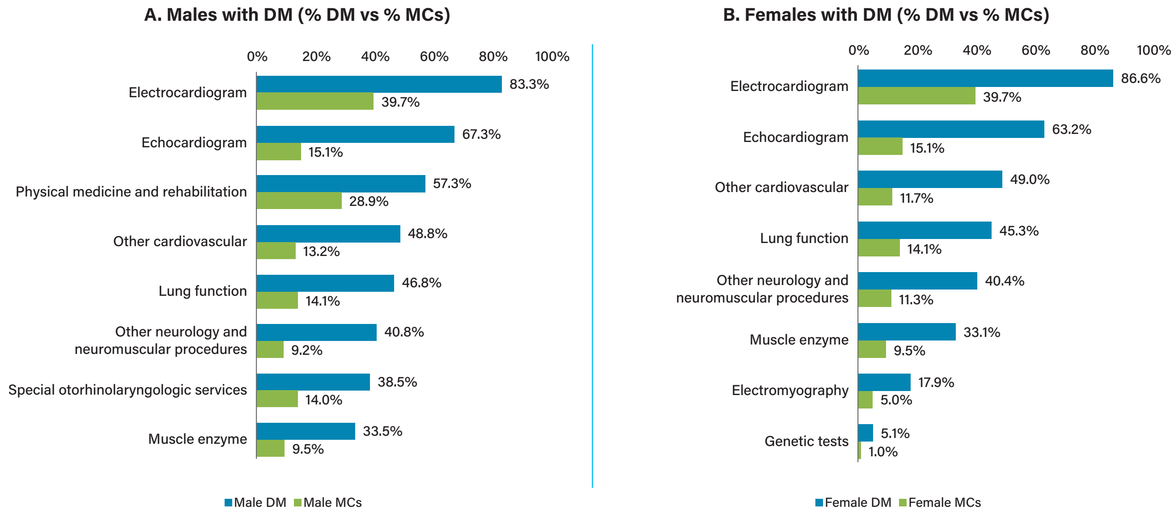
*Comorbidities were selected based on their potential relevance to the DM disease course.

Results (continued)

Service Utilization: Procedures

- Compared with controls, males and females with DM required more healthcare procedures (Figure 3)

Figure 3: Select* Procedures by Utilization of Category per Cohort

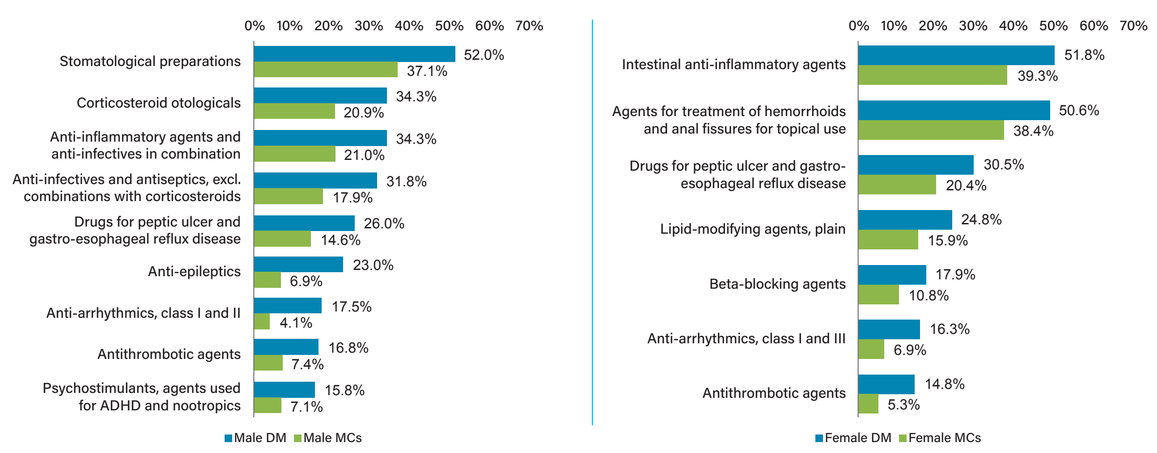


*Procedures were selected based on their potential relevance to the DM disease course.

Service Utilization: ATC3 Drugs

- Males and females with DM had increased use of select ATC3 drugs compared with MCs (Figure 4)

Figure 4: Select* ATC3 Drugs by Utilization per Cohort

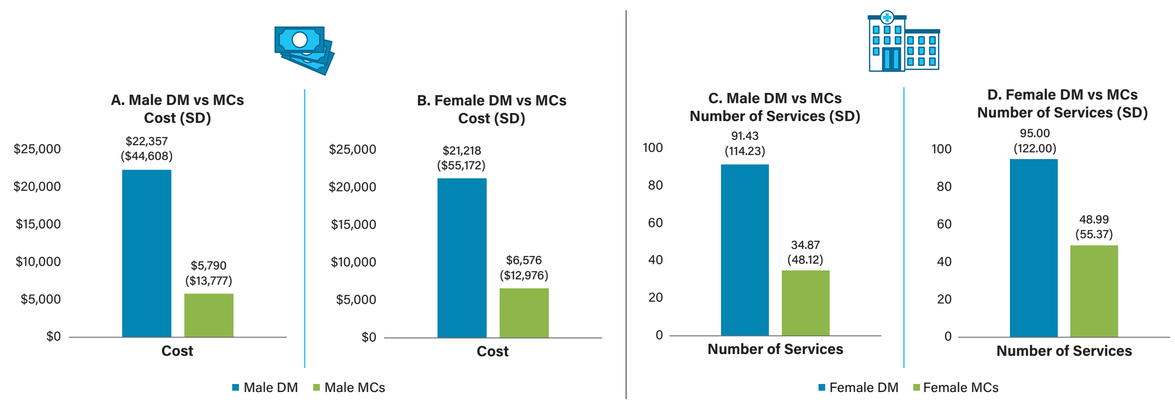


*ATC3 drugs were selected based on their potential relevance to the DM disease course.

Healthcare Costs

- Compared with MCs, males with DM had $16,567 greater healthcare costs and used 56.6 more services. Similarly, females with DM had $14,641 greater healthcare costs and used 46.0 more services (Figure 5)

Figure 5: All Medical and Drug Healthcare Costs and Service Utilization



Conclusions

- Male and female patients with DM, in several categories, experience notable differences in comorbidities, healthcare costs, and service utilization compared with MCs
  - Osteoporosis was higher in males with DM versus MCs, and females with DM experienced several cardiac-related comorbidities in a higher prevalence than their MCs
- This study demonstrates differences in the burden of disease between male and female patients with DM versus their respective MCs
- Service utilization likely reflects multispecialty care in managing DM
- The data reflect the multisystem disease burden and financial consequences on DM patients and their families and provide insight into management that may reduce morbidity and mortality
- Since there are no approved therapies for DM, the increased service utilization likely reflects the manifestations of its management

References

1. Udd B and Krahe R. *Lancet Neurol*. 2012;11(10):891–905. 2. Gourdon G and Meola G. *Front Cell Neurosci.* 2017;11:101. 3. LoRusso S, et al. *Neurotherapeutics.* 2018;15(4):872–84. 4. Elixhauser A, et al. *Med Care.* 1998;36(1):8-27. 5. Anatomical Therapeutic Chemical (ATC) Classification. https://www.who.int/tools/atc-ddd-toolkit/atc-classification [Last accessed August 2023].

Abbreviations

AHRQ, Agency for Healthcare Research and Quality; ATC, Anatomical Therapeutic Chemical; CCI, Charlson Comorbidity Index; DM, myotonic dystrophy; MC, matched controls; ICD-9, International Classification of Disease Ninth Revision; ICD-10, International Classification of Disease Tenth Revision; SD, standard deviation.

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